

AMENDMENTS TO THE CLAIMS

1-53. (Canceled)

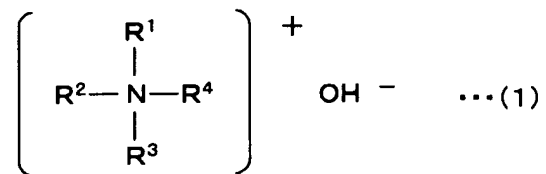
54. (New) A surface treatment method comprising:

introducing a supercritical fluid into a treatment chamber, a supercritical substance combined with a co-solvent or reactant becoming said supercritical fluid,

wherein a liquid form of said supercritical substance is absent from within said treatment chamber.

55. (New) The surface treatment method according to claim 54, wherein said co-solvent or reactant is from the group consisting of an ammonium hydroxide, an alkanolamine, an amine fluoride, and hydrofluoric acid.

56. (New) The surface treatment method according to claim 55, wherein said co-solvent or reactant is said ammonium hydroxide expressed by a formula (1):



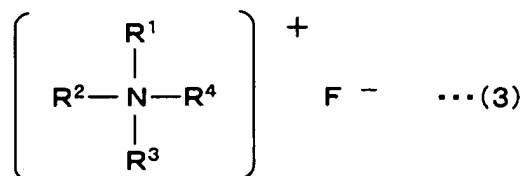
where each of R¹ to R⁴ in the formula (1) independently denotes an alkyl group, hydroxy-substituted alkyl group, aryl group or hydrogen.

57. (New) The surface treatment method according to claim 55, wherein said co-solvent or reactant is said alkanolamine expressed by a formula (2):



where each of R^1 to R^3 in the formula (2) independently denotes an alkyl group, hydroxy-substituted alkyl group, aryl group or hydrogen.

58. (New) The surface treatment method according to claim 55, wherein said co-solvent or reactant is said amine fluoride expressed by the formula (3):



where each of R^1 to R^4 in the formula (3) independently denotes an alkyl group, hydroxy-substituted alkyl group, aryl group or hydrogen.

59. (New) The surface treatment method according to claim 55, wherein said co-solvent or reactant is said hydrofluoric acid.

60. (New) The surface treatment method according to claim 54, wherein the total amount of addition of said co-solvent or reactant in proportion to said supercritical substance of 40°C and 8 MPa is adjusted within a concentration range from 0.1 to 2 mol %.

61. (New) The surface treatment method according to claim 60, wherein said concentration range is 0.1 to 1 mol %.

62. (New) The surface treatment method according to claim 54, wherein said supercritical fluid includes a surfactant.

63. (New) The surface treatment method according to claim 62, wherein said surfactant material is a polar solvent.

64. (New) The surface treatment method according to claim 62, wherein the total amount of addition of said surfactant in proportion to said supercritical substance of 40°C and 8 MPa is adjusted within a concentration range from 1 to 10 mol %.

65. (New) The surface treatment method according to claim 64, wherein said concentration range is 1 to 5 mol %.

66. (New) The surface treatment method according to claim 62, further comprising:

terminating a supply of said co-solvent or reactant and a supply of said surfactant.

67. (New) The surface treatment method according to claim 54, wherein said supercritical substance is carbon dioxide.

68. (New) The surface treatment method according to claim 67, wherein the temperature and pressure of the inner atmosphere of said treatment chamber is 40°C and 10 MPa or above.

69. (New) The surface treatment method according to claim 54, further comprising:

discharging said supercritical fluid from within said treatment chamber, foreign matters removed from a surface of a substrate being discharged along with said supercritical fluid.

70. (New) The surface treatment method according to claim 69, wherein said surface has a photomask thereon, said photomask being utilized for lithography.

71. (New) The surface treatment method according to claim 69, wherein said surface has a structural body thereon.

72. (New) The surface treatment method according to claim 69, wherein said structural body is a fine structural body with a hollow portion, a micro electromechanical systems, or an electrode pattern.

73. (New) The surface treatment method according to claim 54, further comprising:

converting said supercritical substance within said treatment chamber into a gas form, the temperature and pressure of the inner atmosphere of the treatment chamber being lowered to convert said supercritical substance in said treatment chamber into said gas form.

74. (New) A semiconductor device obtainable by the surface treatment method of claim 54.